**Exploring the Solar System**

**Teacher Notes**

Problem Solving, Number Relationships, Computation, Estimation, and Measurement.

**Objectives:**

**Students will…**

* use the Internet to gather data about the physical and orbital properties of the planets in the solar system.
* make metric unit conversions and make conversions between metric units and imperial units.
* convert between scientific notation and standard notation and vice versa.
* construct tables and graphs.
* draw conclusions and make predictions based on their data.
* construct a mathematically accurate model of the solar system.

**Materials Needed:**

* Computer with Internet access
* Scientific or graphing calculator
* Metric ruler or meter stick
* Poster paper

**Web Sites:**

<http://www.seds.org/nineplanets/nineplanets/>

<http://www.solarsystem.com/>

<http://dir.yahoo.com/Science/astronomy/>

**Teaching the Lesson:**

* Students will need a review on **scientific notation concepts** and **how to enter numbers in scientific notation in their calculators.**
* Before the students complete the physical and orbital data tables, demonstrate how to perform the conversions for one planet.
* If students are having trouble scaling down planet size, suggest a centimeter scale of 1:1 billion.
* Students will discover that the planet distances for a 1:1 billion cm scale model will not fit on a piece of poster paper. Help them experiment with different distance scales so that they can fit the solar system on their papers.
* When students are exploring the relationship between distance from the sun and period, they will need to draw a scatter plot. Since the distances and periods may vary so greatly, have students draw the four closest planets to the sun on one plot and the other five planets on a separate plot.